



Sector C: chemical and allied products manufacturing

Industrial stormwater pollution prevention

Sector C includes facilities described by the following Standard Industrial Classification (SIC) codes: 2812, 2813, 2816, 2819, 2821-2824, 2833-2836, 2841-2844, 2851, 2861, 2865, 2869, 2873-2875, 2879, 2891-2893, 2895, 2899, and 3952. Sector C also includes facilities described by a narrative activity: runoff from phosphate fertilizer manufacturing facilities that comes into contact with any raw materials, finished product, by-products or waste products.

Materials and activities at Sector C facilities that can impact stormwater include material transfer and storage; material crushing, blending, or packaging; drum washing; waste treatment and disposal; vehicle fueling and maintenance; and equipment maintenance, cleaning, and storage.

Pollution prevention practices

Minnesota's industrial stormwater permit requires a written Stormwater Pollution Prevention Plan (SWPPP). Use the SWPPP to assess potential sources of pollutants at your facility and then identify practices that will minimize these pollutants in runoff from the site. This fact sheet lists pollution prevention (P2) practices that can be incorporated into your facility's SWPPP.

Keep in mind that P2 is best achieved by qualifying for the No Exposure exclusion. No Exposure means that rain, snow, and runoff do not contact pollutant-containing materials or activities. Your facility can apply for the No Exposure certification as soon as you qualify, even if you already have the full permit. For more information visit the Minnesota Pollution Control Agency's (MPCA) No Exposure web page at <http://www.pca.state.mn.us/noexposure>.

General strategies

- Keep materials and activities indoors as much as possible. Confine outdoor activities to areas that are covered, away from high traffic areas, out of drainage paths, and on impervious surfaces.
- Regularly clean up areas used for handling, processing, and storage using dry methods such as sweeping or squeegee and dustpan.

Shipping and receiving

- Cover or plug storm drains during loading and unloading activities.
- Provide overhangs or door skirts to enclose trailer ends at loading docks.
- Avoid loading or unloading materials in rain or high winds.
- Inspect containers for leaks or damage before loading or unloading.
- Use fluid level indicators on tanks to prevent overfilling.
- For rail transfer, install a drip pan within the rails to collect spillage from the tank.
- Where liquid or powdered materials are transferred in bulk, make sure hose connection points are inside containment areas or drip pans are used.
- Provide dust control if needed by sweeping and/or by applying water or other materials that will not impact surface or ground water.

Waste generation reduction

- Practice just-in-time manufacturing to avoid storing potential stormwater contaminants.
- Purchase chemicals in bulk to reduce the storage of chemical containers.
- Use inventory control to reduce waste, including tracking the date received and expiration dates.
- Contain and frequently collect dust and other wastes as soon as they are generated.
- Avoid buildup of dust or other deposits on exhaust vents and roof stacks. Install particulate collection equipment if needed.

Material storage

- Store chemicals in close proximity to where they will be used to minimize the chance of spilling during handling.
- Maintain an inventory of fluid levels to identify leaks.
- Clearly label all stored materials with the name of the chemical, expiration date, handling instructions, and health or environmental hazards.
- Provide secondary containment for storage tanks and drums.
- Maintain good integrity of all storage tanks and containers and all pipes and tubes transporting materials.
- Mix chemicals in designated areas away from drains, drainage paths, and surface waters.

Manufacturing areas

- Keep floors clean and dry to minimize what is tracked outdoors.
- Make sure filters are in good condition and not torn or otherwise allowing chemicals or dust to escape.
- Clean equipment regularly to remove accumulated dust and residue.
- Remove obsolete equipment before it has a chance to leak or rust. Recycle unused equipment rather than stockpiling it.

Chemicals and wash water

- Use tight-sealing lids on all fluid containers.
- Organize storage for easy access in case of a leak or spill.
- Use monitoring equipment to detect leaks and overflows.
- Use mechanical aids such as pumps, spigots, and funnels when transferring fluids.
- Use tarps, drip pans, and other spill collection devices; immediately manage any waste properly.
- Be prepared for immediate spill cleanup.
- Do not pour liquids (including wash water) into floor drains, sinks, outdoor storm drain inlets or other storm drain or sewer connections.

Pallets and drums

- Use sturdy, rust-free drums.
- Store drums close to areas of operation.
- Provide secondary containment for all drums, empty or used, and all above ground tanks.
- Clearly label each drum with its contents.
- Cover dirty or stained wooden pallets with permanent shelter; clean them if possible.

Inspections

- Inspect equipment maintenance areas to identify problems.
- Inspect storage tanks and piping systems (pipes, pumps, flanges, couplings hoses, and valves) for failures or leaks and perform preventive maintenance.
- Inspect pallets for breakage, dirt or oil.
- Inspect loading and unloading areas for material spills and engine fluid drips.

Employee training

- Train employees in spill prevention, control, cleanup, and materials management techniques.
- Train employees on proper chemical use, storage, cleanup, and waste reuse, recycling or disposal.
- Train employees on equipment operation (for example, how to minimize overspray when using spray equipment).
- Train employees on good housekeeping measures including all SWPPP components.

Cold climate considerations

Minnesota experiences challenging climatic conditions that require thoughtful P2 design and operation. Cold weather, snow, and ice result in extended storage of pollutants in the snowpack. The following P2 activities can help minimize the impact of cold climate on stormwater:

- Sweep sand, salt, and spilled materials from paved surfaces throughout the winter and before snow melts.
- Store materials away from areas where it could get mixed with snow and moved around when the area is plowed. Keep materials out of accumulated or dumped snow.
- Cover salt storage areas to help minimize contact with stormwater.
- Use judicious amounts of de-icing and anti-skid chemicals and road salt.
- Keep plowed snow out of retention ponds. This ensures the treatment capacity of the pond is available during snowmelt or rain on frozen ground.

Stormwater treatment best management practices

Stormwater treatment BMPs are engineered structures that treat stormwater runoff or reduce the stormwater runoff rate, volume, and velocity. In combination with P2 practices, stormwater treatment Best Management Practices (BMPs); such as retention ponds act as a second line of defense against polluting downstream waterbodies. Treatment BMPs should be used down-gradient of areas where P2 activities have been fully implemented. Specific guidance on stormwater treatment BMPs is in the *Minnesota Stormwater Manual* and the *BMP Guidebook*, which are linked in the Resources section at the end of this fact sheet.

Groundwater pollution potential

Groundwater contamination is of greatest concern where there is a high water table and in karst regions. A water table that is close to the surface can allow pollutants to enter the groundwater system quickly, which does not allow time for pollutant levels to be reduced by the soil. Karst is common in southeastern Minnesota and is largely shaped by the dissolving action of water on limestone. Over time, this creates features such as sinkholes, disappearing streams, complex underground drainage systems, and caves. Water and pollutants can flow rapidly through these features to wells and streams.

Extra precautions to prevent groundwater contamination in these areas include P2 measures such as proper storage and handling of materials, spill prevention planning, good housekeeping, and employee training. In addition, stormwater treatment BMPs used downstream of P2 practices should be designed with sensitivity to local conditions.

Resources

BMP Guidebook (fact sheet #wq-strm3-26) is available on the MPCA website at <http://www.pca.state.mn.us/index.php/view-document.html?gid=10557>.

EPA industrial stormwater fact sheet *Sector C: Chemical and Allied Products Manufacturing and Refining* is available on the EPA website at http://www.epa.gov/npdes/pubs/sector_c_chemical.pdf.

Industrial stormwater webpages on the MPCA website at <http://www.pca.state.mn.us/industrialstormwater>.

Industrial stormwater permit (document #wq-strm3-67a) is available on the MPCA website at <http://www.pca.state.mn.us/index.php/view-document.html?gid=20797>.

Low Impact Development for Businesses webpage on the MPCA website at <http://www.pca.state.mn.us/veiz7d0>.

Manufacturers: Reduce your exposure to stormwater regulations (fact sheet #wq-strm3-15) is available on the MPCA website at <http://www.pca.state.mn.us/index.php/view-document.html?gid=7720>.

Minnesota Stormwater Manual is available on the MPCA website at <http://stormwater.pca.state.mn.us>.

No Exposure: Qualifying for and keeping the exclusion (fact sheet #wq-strm3-13) is available on the MPCA website at <http://www.pca.state.mn.us/publications/wq-strm3-13.pdf>.

More information

For more information e-mail the MPCA's industrial stormwater program at iswprogram.pca@state.mn.us or call the stormwater hotline at 651-757-2119 or 800-657-3804 (non-metro only).